

REMARKS

This amendment is submitted in a good faith effort to advance the prosecution of the subject application and consolidate the issues for appeal. Entry thereof is respectfully requested.

Claim 1 has been amended to clarify that the reference to the "structurant system comprising from 5.5 to 20% in total" of a di or triblock alkylene/arylene block copolymer and an organic wax in a weight ratio to each other of from 5:1 to 1:30, refers to the percentage of structurant in the composition. See, for example, the abstract:

Cosmetic compositions in the form of soft solid having in combination an improved resistance to syneresis and retained efficacy... are obtained by employing as carrier liquid a mixture of a hydrocarbon oil and an aromatic ester oil in a weight ratio of from 1:2 to 15:1 and as structurant system from 5.5 to 20% in total of a diol triblock alkylene/arylene block copolymer and an organic wax in a weight ratio to each other of from 5:1 to 30:1.

See also, the specification at page 11 to 16:

Herein the structurant system employed comprises a combination of an organic wax and a di and/or triblock alkyl/aryl copolymer. The combined weight of the structurant system is usually at least 5.5%; in many preferred embodiments the structurant system is up to 12% by weight.

Accordingly, amended claim 1 specifies that the structurant system comprises from 5.5% to not more than 12% by weight of the composition. A similar amendment has been made to claim 8.

Claim 1 has been further amended to incorporate the requirements of claim 7 (specifying that the weight proportion of carrier oil in the composition is at least 45%), and claim 9 (specifying that the weight proportion of carrier oil in the composition is not more than 80%). Claim 8 has been amended to incorporate the requirements of claim 11 (specifying that the total weight proportion of carrier oils in the composition is from 55 to 70%). Claims 7 and 9 have been cancelled without prejudice.

In view of the remarks that follow, reconsideration and allowance of the subject claims, as hereby amended, is respectfully requested.

Claim 1 to 35 stand rejected under 35.U.S.C. 103(a) as unpatentable over US 5,221,534 (DesLauriers et al.) in view of US 6,403,070 (Pataut et al.) and further in view of US Patent 5,750,096 (Guskey). Additionally, Claims 1-35 stand rejected under 35 U.S.C. 103(a) as unpatentable over Pataut et al. in view of US 6,986,885 (Matti et al.).

Pursuant to this invention it was found that by employing specified proportions of a particular mixture of carrier liquid and structurant i.e., a carrier liquid comprising a mixture of a hydrocarbon oil and an aromatic ester oil, and a structurant comprising a di-or triblock alkylene/arylene block copolymer and wax, and by limiting the amount of auxillary hydrotropic carrier oil, if present, to not more than 15% by weight of the total weight of the of the carrier liquid, one could produce high carrier oil content compositions (claim 1 specifying a carrier oil content of at least 45% by weight to not more than 80% by weight, and independent claim 8 specifying a carrier oil content of from 50 to 70% by weight) which both reduced the problem of syneresis and maintained acceptable antiperspirant efficacy.

As previously noted, DesLauriers et al. discloses gel compositions that contain both hydrocarbon oil and a block copolymer as described by the subject claims. An aromatic ester oil can be present as an additional optional component. The focus of the patent is on combining di and triblock copolymers to provide stable gel compositions. The patent discusses syneresis in the context of oil separation that occurs when a gel contracts, such as by excessive cross-linking of the block copolymer. See for example, column 3, lines 54 to 68:

According to this invention it has been discovered that certain thermoplastic rubber copolymers are particularly suitable as gelling agents for cosmetic applications. It was discovered in this work that certain gels exhibit syneresis wherein the separation of liquid from the gel by contraction occurs by virtue of the concentration of the insoluble block present in the triblock copolymer. The higher the concentration of the insoluble block, as exemplified by styrene, the more phase separation and crosslinking will occur. However, according to this

invention, it has further been discovered that the amount of syneresis which occurs can be controlled by mixing such systems with polymer blends such as diblock copolymers and with triblock copolymers which do not exhibit syneresis.

The compositions disclosed by Des Lauriers et al. are blends that contain about 80-99% of hydrocarbon oil or carrier vehicle, about 1-20% of the mixture of diblock and triblock polymers, and an effective amount, e.g., 0.001 up to 10% of one or more health and beauty aids. See column 7, lines 60-65. DesLauriers et al. further characterizes its compositions as follows:

In the preferred embodiment of the present invention, the blend of diblock and triblock polymers is formed in admixture with a carrier vehicle such as a natural or synthetic hydrocarbon oil or mixture thereof. Such hydrocarbon oils should have characteristics which will cause them to remain liquid at temperatures ranging from 0°C. for almost all applications. The hydrocarbon oil may be a paraffinic oil, a naphthenic oil, natural mineral oil or the like. White oil is especially preferred.

When formed into gels, the mixture or blend of copolymers, will comprise about 1 to 20 wt% of the total weight. Preferably the total weight of polymer contained in the oil will range from about 5 to 15 wt.%. **Solvents which may be added to dilute the gel and form lotions and other flowable compositions comprise isopropyl myristate, isopropyl palmitate, silicones, organic esters, and the like.** The commercially available Finsolv™ is a particularly preferred solvent. Finsolv™ is a benzoate C₁₂ – C₁₅ ester available from Finetex, Inc., Elmwood Park, N.J. See column 6, lines 24 to 44; emphasis added.

In Table 5, various types of gels are disclosed, with polymer contents ranging from 3.5 to 15%. The gels were evaluated for the formation of surface oil. Surface oil formation varied with the type and amount of block copolymer.

There is nothing in DesLauriers et al. that addresses the use of wax or antiperspirant active as components of the disclosed compositions.

Patuat et al., is directed to anhydrous deodorant compositions that contain block copolymer as a gelling agent. The patent further discloses the use of AP actives, wax (as a "consistency agent"), and emollients as additional optional components. The emollients disclosed by Pataut et al. are fatty acid esters such as isopropyl myristate and isopropyl palmitate (both of which are aliphatic esters). See

column 5, lines 57 to 65. **Patuat et al. does not disclose the use of aromatic esters.**

In addressing the prior use of block copolymers, the patent references the PCT family member of **DesLauriers et al.** (i.e., WO 94/12190):

The use of at least one gelling agent comprising styrene/elastomer block copolymers in mineral oils has previously been recommended for deodorant sticks in Patent Application WO 94/12190, the disclosure of which is incorporated herein by reference. However, such sticks may leave an undesirable greasy residue on the skin and may not exhibit at least one of the desired advantages mentioned above (stability, homogeneity, rheological properties on application, no visible residue upon application or after drying, leaves skin soft to touch).

The Inventors have discovered that when an effective amount of at least one fat-absorbing substance and an effective amount of at least one synthetic oil is included with at least one deodorant active agent and at least one block copolymer derived from (i) at least one monomer of styrene and (ii) at least one thermoplastic entity chosen from thermoplastic monomers and thermoplastic comonomers to form a deodorant cosmetic composition, it may be possible to significantly improve the deodorant cosmetic composition and it may be possible to obtain at least one of the above-identified desired properties, such as all of the above-identified desired properties.

By virtue of the present invention it can be possible to obtain stable and homogeneous compositions with a viscosity suitable for a variety of forms (e.g. sticks, gels, and creams) which do not exude and which spread very well over the skin without leaving a visible white and/or greasy residue on application or after drying of the applied deodorant cosmetic composition. See column 1, lines 24 to 49, parenthetical added.

Pataut et al. describes the compositions of DesLauriers et al. as having the potential problem of exuding oil. To address this problem, Pataut et al. discloses the inclusion of a fat-absorbing substance (for example, talcs, starches, starch derivatives, clays, silicas, polyolefins polystyrenes and teflons).

Thus, one skilled in the art reading DesLauriers et al. and Pataut et al. would learn that mineral oil/block copolymer blends can exhibit oil separation, and that oil separation can be controlled, in part, by the amount and type of block copolymer employed; additionally, the addition of a fat-absorbing substance may aid in masking oil separation

The Office Action of March 8, 2007 contends that given the teaching of Pataut et al. of the use of organic wax in gel-based deodorant compositions, it would be obvious to add wax to the Finsolv-containing composition of Des Lauriers et al. "because both teach antiperspirant compositions comprising mineral oil and diblock or triblock copolymers, and the waxes taught by '070 (Pataut et al.) can advantageously modulate consistency of deodorant compositions..." Parenthetical added. Applicants respectfully refute this argument. To the extent that Finsolv, a benzoate ester, is disclosed by DesLauriers et al., it is in the context of its function **as a solvent to dilute the disclosed gels and form a flowable composition**. The addition of wax (a structurant), would seemingly be at odds with the function of benzoate ester disclosed by DesLauriers et al.

In contrast to the claimed compositions (which contain at least 45% and not more than 80% of carrier oil (claim 1) or from 55 to 70% of carrier oil (claim 8), DesLauriers et al. discloses compositions that contain about 80-99% of hydrocarbon oil or carrier vehicle. One skilled in the art would be aware that the inclusion of additional components in such compositions, for example, AP active and waxes may give rise to additional formulation difficulties, particularly as the amount of such additional components is increased. In displacing some portion of the base components, the additional components may change solubility, rheology, or compositional parameters. One could also reasonably expect that the higher melting temperatures required to process waxes and the fact that the waxes cool to a solid state, impact the performance of the polymeric structurant, i.e., the block copolymer. Pataut et al. fails to provide any teaching regarding the effect of compositional changes in the combination of carrier oil and structurant components on syneresis in soft solids.

The Office Action contends that since Pataut et al. discloses the use of isopropyl myristate or isopropyl palmitate, based on the teaching of Muttai et al. of the use of FinsolvTM as an emollient in antiperspirant semi-solids, it would be obvious of one of ordinary skill in the art to combine the teaching of Pataut et al. with Muttai et al., and use an aromatic ester oil in the compositions disclosed by Pataut et al. as an emollient.

Applicants refer to their Amendments of January 24, 2006, and September 25, 2006 and the discussion provided therein regarding the examples and comparative examples. The data is reported in the Amendment of September 25, 2006 is reproduced below with additional information taken or derived from the specification to facilitate easier comparison.

REF	WAX (wt. %)	Transgel 110 (wt. %)	% HYDRO- CARBON OIL (wt. %)	AROMATIC ESTER OIL (wt. %)	OTHER OIL (wt. %)	AP ACTIVE (wt. %)	OTHER POLYMER (wt. %)	SYNERESIS	EFFICACY	Total Carrier Oil Content*
CP1	6.5				63	25.5 AZAG	4% (dimethicone elastomer in cyclomethicone; DC 9040 from Dow Corning)	Fail (S1C)		63 + carrier from elastomer gel (< 4%); i.e., < 67%
CP2	6.25				67.75	26 AZAG		Fail (S1C)		68
CP3				64.5		25.5 AACH	10 % (dextrin palmitate)	Fail (S1C)		74
CP4	10			63		25.5 AACH		Fail (S1C)	Pass	63
CP5			Oil from predispersion	31.5		25.5 AACH	3% (dextrin palmitate) + 40% dimethicone/copolyol elastomer in mineral oil as a predispersion	Pass (NC6)	Fail	32 + carrier from elastomer gel (< 40%); i.e., less than 72%
CP6	7.5	40.2	Oil from predispersion		26.8 cyclomethicone	25.5 AACH		Fail (S2C)		68
EX1	7.5	40.2	Oil from predispersion	26.8		25.5 AACH		Pass	Pass	67-68
EX3	7.5	40.2	Oil from predispersion	26.8		25.5 AZAG		Pass	Pass	67-68
CP7	7.5	30.2	Oil from predispersion	18.4	18.4 cyclomethicone	25.5 AACH		Fail (S6C)		66-67
EX2	7.5	30.2	Oil from predispersion +18.4 additional HC oil (isoparaffin)	18.4		25.5 AACH		Pass	Pass	66-67
CP8		29.8	Oil from predispersion	44.7		25.5 AACH		Fail (S1C)		73-74
CP9	7.5	30.2	Oil from predispersion +36.8 additional HC oil (mineral oil)			25.5 AZAG		Fail (S5C)		66-67
CP10	7.5	30.2	Oil from predispersion +36.5 additional HC oil (isoparaffin)			25.5 AZAG		Fail (S4C)		66
CP11	7.5	30.2	Oil from predispersion		36.5 (octyl dodecanol)	25.5 AZAG		Fail (S1C)		66
CP12	7.5	30.2	Oil from predispersion		36.5	25.5 AZAG		Fail (S1C)		66
EX14	10.0	27.5	Oil from predispersion	37.5 **	decyl oleate	25.5 AACH		Pass		64-65

*Total carrier oil content was derived using the specification's disclosure that preferred predispersions contain 1.5-4% of block copolymer. Total carrier oil content values are rounded to the nearest percentage.

** A combination of benzoate and salicylate oils.

For more complete information regarding components and compositions, please refer to the subject application.

CP6 and Example 1 are otherwise identical compositions (each containing **wax, block copolymer, hydrocarbon oil, and AP active** as required by the subject claims) except that CP6 contained 26.8% of **cyclomethicone**, while Example 1 contained 26.8% of **aromatic ester oil**. Despite having the same total level of carrier oil, Example 1 had acceptable syneresis, but CP6 did not. Thus, while aromatic ester oil and cyclomethicone are both recognized as carrier oils, they are not functionally equivalent in the subject compositions. CP7 and Example 2 are otherwise identical compositions (each containing **wax, block copolymer, hydrocarbon oil, AP active and aromatic ester oil** as required by the subject claims) except that Example 2 contained an additional **18.4% of hydrocarbon oil** and CP7 contained **18.4% of cyclomethicone**. Despite having the **same total level of carrier oil**, Example 2 had acceptable syneresis, but CP7 did not. Thus, while hydrocarbon oil and silicone oil are both recognized as carrier oils, they are not functionally equivalent in the subject compositions; more particularly, **the use of silicone oil, an auxillary hydrotropic carrier oil, in an amount outside the claim requirements** gave rise to a composition that did have acceptable syneresis.

CP9 to CP12 (each of which failed with respect to syneresis performance) had approximately the same total amount of carrier oil as Examples 1 to 3, the same amount of antiperspirant active and the same amount of wax. **None of CP9 to CP12, however, contained aromatic ester oil.** In CP12, the carrier oils were a combination of **aliphatic ester and hydrocarbon oils**).

Example 14, a composition that contained 37.5% **aromatic ester oil** (in addition to wax (10%), block copolymer, hydrocarbon oil, and antiperspirant active) had acceptable syneresis.

Applicants have compared compositions with comparable total carrier oil contents and demonstrated that aromatic ester oils used together with hydrocarbon oils offer significant and unexpected improvements over other carrier oil systems (including hydrocarbon oils alone, combinations of hydrocarbon and silicone oils, and combinations of hydrocarbon and aliphatic ester oils). It is respectfully submitted that it is not predictable from Des Lauriers et al., Pataut et al., or Muttai et al., individually or in combination, that the inclusion of an aromatic ester in a composition

containing wax, antiperspirant active, hydrocarbon oil and the subject block copolymer would provide a composition having both acceptable antiperspirant efficacy and acceptable syneresis. Nor do these cited patents disclose or suggest **the negative limitations** of the subject claims as regards auxillary carrier oils, for example, silicones. In fact, the compositions of Muttai et al. (which citation discloses compositions having very different carrier oil/structurant systems, including an altogether different structuring polymer) are disclosed as having from 40-75% of volatile silicone, especially a D5 cyclomethicone.¹

Both DesLaureiers et al. and Pataut et al. address the issue of oil separation in carrier oil gels. DesLauriers et al. through selection and amount of block copolymer, and Pataut et al. through the use of an oil absorbing material that masks oil separation. Despite syneresis being an acknowledged issue with respect to the compositions therein described, neither patent in any way discloses or suggests compositions having the claimed combination of components as a means of reducing same, or in any way discloses or suggests that the carrier oil composition could have a significant impact on syneresis in soft solid compositions. That is to say, the improvement in syneresis provided by the subject combination of AP active, carrier oil, wax and structurant components is not expected or predictable from the cited patents.

Gusky is directed to solid sticks recognized to be firm compositions rather than soft solids. The sticks are disclosed as having a product hardness of at least 500 gram force, which is representative of self-supporting sticks. Self supporting sticks do not have the problem of being dispensed through narrow slits or apertures. The citation is not relevant to solving the problem of controlling syneresis in soft solids, and one skilled in the art looking to solve this problem would not be motivated to combine same with either Pataut et al. or DesLauriers et al. Moreover, as noted above, Pataut et al. discloses soft solid compositions containing AP active.

¹ Mattai et al. acknowledges that the use of its structuring polymer, a silicone elastomer, is known to give rise to a reduction in efficacy due to the formation of an occlusive elastomeric film. To address this problem, the patent discloses the inclusion of polyethylene beads (particle size 5-40 microns), which beads are also disclosed as contributing to a reduction in syneresis and giving the products a powdery feel. See column 7, lines 34 to 37. The reduction in efficacy that can occur using a silicone elastomer structuring polymer is demonstrated by Applicant's comparative example CP5. CP5

Mattai et al. is directed to soft solid compositions that contain from **40-75% of a volatile silicone**, especially a CP5 cyclomethicone, 0.1-20% of an emollient or a mixture of two or more emollients, 0.5-6% (on a solids basis) of a **dimethicone/vinyldimethicone crosspolymer**, 0.1-20% AP active, and 2-15% of polyethylene beads. Compositionally, the soft solids disclosed by Mattai et al. are very different than those of the subject compositions. The fact that it discloses soft solids, in and of itself does not provide one skilled in the art with any reason to believe that extracting the teaching of aromatic esters as emollients would provide a means to solving the problem of syneresis in a soft solid composition containing the subject block copolymers.

In light of the above amendments and remarks, it is respectfully requested that the application be allowed to issue.

If a telephone conversation would be of assistance in advancing the prosecution of the present application, applicants' undersigned attorney invites the Examiner to telephone at the number provided.

Respectfully submitted,



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contained an aromatic ester oil, dextrin palmitate, AP active, hydrocarbon oil and a dimethicone/copolyol elastomer. CP5 did not have acceptable antiperspirant efficacy.